



3

In re Application of: Clifford A. REID et al.

Confirmation No.: 2108

Patent No.: 7,085,842 B2

Application No.: 09/782,172

Patent Date: August 1, 2006

Filing Date: February 12, 2001

For: LIVE NAVIGATION WEB-CONFERENCING  
SYSTEM AND METHOD

Attorney Docket No.: 7663-6000

**REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 C.F.R. § 1.322**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Patentees hereby respectfully request the issuance of a Certificate of Correction in connection with the above-identified patent. The corrections are listed on the attached Form PTO-1050. The corrections requested are as follows:

**Title Page:**

Item (54), change the title from "LINE NAVIGATION CONFERENCING SYSTEM" to -- **LIVE NAVIGATION WEB-CONFERENCING SYSTEM AND METHOD** --.

Support for this change appears in the original specification filed February 12, 2001.

**Column 18:**

Line 56, after "2. The", change "system" to -- method --.  
Line 58, after "3. The", change "system" to -- method --.  
Line 60, after "4. The", change "system" to -- method --.

**Certificate**  
**SEP 06 2006**  
**of Correction**

**Column 20:**

Line 22, after "7. The", change "method" to -- system --.  
Line 24, after "8. The", change "method" to -- system --.  
Line 26, after "9. The", change "method" to -- system --.

09/05/2006 MBERHE1 00000030 7085842

01 FC:1811 100.00 DA

The changes requested at columns 19 and 20 are to correct errors of a clerical or typographical nature and do not involve changes that would constitute new matter or require reexamination.

**SEP 06**

A fee of \$100 is believed to be due for this request. Please charge the required fees to Winston & Strawn LLP Deposit Account No. 50-1814. Please issue a Certificate of Correction in due course.

Respectfully submitted,

8-31-06  
Date

Allan A. Fanucci  
Allan A. Fanucci (Reg. No. 30,256)

**WINSTON & STRAWN LLP**  
**Customer No. 28765**

212-294-3311

10/2/06

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO.: 7,085,842 B2  
APPLICATION NO.: 09/782,172  
DATED: August 1, 2006  
INVENTOR(S): Reid et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page:

Item (54), change the title from "**LINE NAVIGATION CONFERENCING SYSTEM**" to  
-- **LIVE NAVIGATION WEB-CONFERENCING SYSTEM AND METHOD** --.

Column 18:

Line 56, after "**2. The**", change "system" to -- method --.  
Line 58, after "**3. The**", change "system" to -- method --.  
Line 60, after "**4. The**", change "system" to -- method --.

Column 20:

Line 22, after "**7. The**", change "method" to -- system --.  
Line 24, after "**8. The**", change "method" to -- system --.  
Line 26, after "**9. The**", change "method" to -- system --.



US007085842B2

(12) **United States Patent**  
**Reid et al.**

(10) **Patent No.:** **US 7,085,842 B2**  
**(45) Date of Patent:** **Aug. 1, 2006**

**LIVE NAVIGATION WEB-CONFERENCING SYSTEM AND METHOD**

(54) **LINE NAVIGATION CONFERENCING SYSTEM**

(75) Inventors: **Clifford A. Reid**, Pacifica, CA (US);  
**Murray Low**, Santa Cruz, CA (US);  
**Charles R. Anderson**, Santa Cruz, CA (US);  
**Neal Rutta**, San Jose, CA (US);  
**Kenneth R. Grant**, San Carlos, CA (US)

(73) Assignee: **Open Text Corporation**, Waterloo (CA)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 719 days.

(21) Appl. No.: **09/782,172**

(22) Filed: **Feb. 12, 2001**

(65) **Prior Publication Data**

US 2002/0112004 A1 Aug. 15, 2002

(51) **Int. Cl.**  
**G06F 15/16** (2006.01)

(52) **U.S. Cl.** ..... **709/231; 722/87**

(58) **Field of Classification Search** ..... **709/203, 709/217, 223, 231-233; 722/87**  
 See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,149,104 A 9/1992 Edelstein

(Continued)

**FOREIGN PATENT DOCUMENTS**

WO WO 97/41504 11/1997

(Continued)

**OTHER PUBLICATIONS**

R. Yavatkar et al., 1994, "Clique: A Toolkit for Group Communication Using IP Multicast", IEEE, Distributed and Networked Environments, pp. 132-138.

"Streaming Media Technical Analysis", White paper by Approach, Inc., Nov. 2000, 50 pages.

*Primary Examiner*—John Follansbee

*Assistant Examiner*—M. A. Siddiqi

(74) *Attorney, Agent, or Firm*—Winston & Strawn LLP

(57) **ABSTRACT**

A system for delivery of content over a wide area network, the content being captured by the system over a time period of a live event, the system comprising a first computer connected to a first side of the wide area network, the first computer having a cache for storing at least one data stream and the first computer having access to executable instruction code in an electronically readable medium. The executable instruction code is for at least: (1) identifying a live portion of the at least one data stream containing content captured by the system, the live portion being that portion of the at least one data stream at the first computer containing content captured more recently by the system than the content contained in any other portion of the at least one data stream at the first computer currently available for sending from the first computer to a second computer, the second computer being connected to a second side of the wide area network; (2) identifying a user position portion of the at least one data stream, the user position portion of the at least one data stream being that portion most recently sent from the first computer to the second computer; (3) receiving a first request at the first computer from the second computer; (4) in response to the first request, sending the live portion of the at least one data stream from the first computer to the second computer; (5) receiving a second request at the first computer from the second computer; and (6) in response to the second request, sending a portion of the at least one data stream from the first computer to the second computer containing content captured less recently by the system than content contained in the live portion of the at least one data stream. The first request and the second request may be sent from the second computer to the first computer and responded to by the first computer in alternating fashion during a time period that at least includes the time period of the live event as extended by a latency period of the wide area network.

**10 Claims, 7 Drawing Sheets**

MODE	DATA STREAMS	CONTENT DELIVERY SPEED	TIME STAMP OF DATA PLAYED
LIVE	VIDEO, REGULAR AUDIO, SLIDE FLIPS	NORMAL	REAL TIME (TIME OF LATEST DATA CAPTURE + NETWORK LATENCY)
REWIND	VIDEO, SLIDE FLIPS (SFn-1)	FAST (REVERSE TIME STAMP ORDER)	DEPENDENT ON USER REQUEST
PLAY	VIDEO, REGULAR AUDIO, SLIDE FLIPS	NORMAL	DEPENDENT ON USER REQUEST
CATCH-UP	VIDEO, FAST AUDIO, SLIDE FLIPS	FAST	BEGIN: DEPENDENT ON USER REQ. & ut < rt END: WHEN ut = rt
PAUSE	_____	_____	_____

stamp values. In CATCH-UP mode, stream server 12 also synchronizes streaming of the fast audio with the streaming of the video and makes the necessary time stamp associations with the fast audio data so that the desktop player program on participant computer 14-1 presents both the video and the fast audio data in a manner consistent with the CATCH-UP mode.

FIG. 7 illustrates an "on-the-fly" slide creation process carried out by system 10 for enhancing the speaker's ability to smoothly weave questions and responses into the presentation. Although it is desirable for a speaker to allow and respond to audience questions, it may be helpful to the speaker to have some control over when in the course of the presentation questions will be addressed. System 10 utilizes the slide creation and display process as an opportunity for speakers to control the flow of questions during the presentation. The speaker (or other author) may create a Q/A slide such as Q/A slide 71 which might consist of nothing more than the title "Questions" and some background color. The speaker inserts such a slide into the presentation at a point relative to the discussion of other slides that the speaker would like to entertain audience questions. When a Q/A slide 71 is selected for display by the speaker (i.e. the speaker inputs a slide flip command in which the speaker computer and the participant computers are instructed to "get (and display) Q/A slide 71"), question text, such as text 72 and text 73, is exported to speaker computer 11-1 in XML ("eXtensible Markup Language") format from moderator computer 15-1. At the speaker computer 11-1 the question text (and any annotation text added by the moderator) is merged into the Q/A slide and the Q/A slide is displayed for the speaker including actual questions from the audience. If the speaker has decided to create a "private" Q/A slide, the XML text stream will not be transmitted beyond speaker computer 11-1. However, if the speaker has decided to create a "public" Q/A slide, the XML text stream will be transmitted from speaker computer 11-1 to stream server 12 for caching and delivery to participant computer 14-1 where it will be merged with the copy of the Q/A slide 51 that participant computer has requested from slide server 13. A speaker might create multiple Q/A slides. This allows the speaker to view (and optionally display for the audience) questions as they arise at various points in the presentation.

Both the transmission for question text and the transmission of slide flips may be accomplished through a single text stream. The text stream will, at various times, contain either XML text of slide flip command text.

It will be appreciated by those skilled in the art that most web browsers can automatically display text in XML format. Therefore, by sending the question (and annotation) text in XML format, system 10 makes the merge and display of the question text with the Q/A slide particularly easy. In alternative embodiments, the text of the question could be sent in a simple text format, such as ASCII, and the speaker computer and participant computer would reformat the text into a browser-displayable format (such as XML or HTML), and then merge the text with the slide for display.

It will be appreciated by those skilled in the art that many of the tasks described above might, in alternative embodiments, be combined on a fewer (or greater) number of machines than the number of machines in system 10. To cite by one example, stream server 12 might also perform all the tasks performed by slide server 13 and/or voice server 16 without departing from the spirit of the present invention. However, we believe the configuration of system 10 offers good performance given existing technologies and is thus the presently preferred embodiment.

We claim:

1. A method of streaming a first data stream of a live event in a first and second streaming modes supported at a first computer connected to a first side of a wide area network from the first computer to a second computer connected to a second side of the wide area network, the second computer having a media player program for presenting content of the first data stream to a user at the second computer, a first mode of the media player program not changing in response to a change from the first of the streaming modes to the second of the streaming modes, the method comprising:

the first computer sending executable instruction code to the second computer for invoking the first mode of the media player program and for presenting an on-screen interface allowing a user at the second computer to request in successive fashion at least the first and the second of the plurality of streaming modes supported at the first computer;

in response to a request received at the first computer from a user at the second computer during the live event to change from the first of the plurality of streaming modes to the second of the plurality of streaming modes, associating time stamp values with data units of the first data stream such that the media player program at the second computer will present content of the first data stream in a manner providing the user at the second computer an experience of a mode change while the media player program remains in the first mode of the media player program, wherein the first mode of the media player program is a mode for playing content at a first content rate, the first mode of the streaming modes is a mode for playing content at the first content rate, and the second mode of the streaming modes is a mode for playing content at a second content rate, the second content rate being faster than the first content rate, and wherein when streaming in the second of the plurality of modes, time stamps of data units sent to the second computer are adjusted such that a time value difference between the time stamps of a first data unit and a second data unit is less than the time value difference between the time stamps originally applied to the first data unit and the second data unit so that the media player program, while remaining in a mode for playing content at the first content rate, plays content at the second content rate; and

wherein one of the streaming mode is a live streaming mode for presenting live content of the live event and the other one of the streaming mode is a non-live streaming mode for presenting content of the live event that is less recent than the live content, and wherein the first mode of the media player transitions from the non-live streaming mode to the live streaming mode when the time stamp value of the data units of the non-live streaming mode catches up to the time stamp values of the live streaming mode.

2. The system of claim 1 wherein the first data stream is a first sequence of audio samples.

3. The system of claim 1 wherein the first data stream includes a first sequence of video frames.

4. The system of claim 1 wherein the first data stream includes a first sequence of commands for directing the second computer to retrieve and present a sequence of slides.

5. The method of claim 1 wherein the first mode of the media player is a mode for playing in sequence data units having successively increasing time stamp values, the first mode of the streaming modes is the live streaming mode, the second mode of the streaming modes is the non-live stream-

Method

19

ing mode having a first identifiable difference between an originally applied time stamp of a data unit to be next delivered from the first computer to the second computer and a time stamp corresponding to real time wherein the time stamp value of the data unit to be next delivered is changed from the originally applied time stamp to the time stamp corresponding to real time such that the second computer continues to receive data units that have successively increasing time stamp values when a mode change from the first of the streaming modes to the second of the streaming modes occurs.

6. A system for streaming a first data stream of a live event in a first and second streaming modes supported at a first computer connected to a first side of a wide area network from the first computer to a second computer connected to a second side of the wide area network, the second computer having a media player program for presenting content of the first data stream to a user at the second computer, a first mode of the media player program not changing in response to a change from the first of the streaming modes to the second of the streaming modes, the system comprising:

the first computer configured to send executable instruction code to the second computer for invoking the first mode of the media player program and for presenting an on-screen interface allowing a user at the second computer to request in successive fashion at least the first and the second of the plurality of streaming modes supported at the first computer;

the second computer that is configured to send a request from a user to the first computer during the live event in response to which the first computer is to change from the first of the plurality of streaming modes to the second of the plurality of streaming modes, and is further configured to use time stamp values associated with data units of the first data stream such that the media player program at the second computer will present content of the first data stream in a manner providing the user at the second computer an experience of a mode change while the media player program remains in the first mode of the media player program, wherein the first mode of the media player program is a mode for playing content at a first content rate, the first mode of the streaming modes is a mode for playing content at the first content rate, and the second mode of the streaming modes is a mode for playing content at a second content rate, the second content rate being faster than the first content rate, and

20

wherein when streaming in the second of the plurality of modes, time stamps of data units sent to the second computer are adjusted such that a time value difference between the time stamps of a first data unit and a second data unit is less than the time value difference between the time stamps originally applied to the first data unit and the second data unit so that the media player program, while remaining in a mode for playing content at the first content rate, plays content at the second content rate; and

wherein one of the streaming mode is a live streaming mode for presenting live content of the live event and the other one of the streaming mode is a non-live streaming mode for presenting content of the live event that is less recent than the live content, and the first mode of the media player transitions from the non-live streaming mode to the live streaming mode when the time stamp value of the data units of the non-live streaming mode catches up to the time stamp values of the live streaming mode.

7. The method of claim 6 wherein the first data stream is a first sequence of audio samples.

8. The method of claim 6 wherein the first data stream includes a first sequence of video frames.

9. The method of claim 6 wherein the first data stream includes a first sequence of commands for directing the second computer to retrieve and present a sequence of slides.

10. The system of claim 6 wherein the first mode of the media player is a mode for playing in sequence data units having successively increasing time stamp values, the first mode of the streaming modes is the live streaming mode, the second mode of the streaming modes is the non-live streaming mode having a first identifiable difference between an originally applied time stamp of a data unit to be next delivered from the first computer to the second computer and a time stamp corresponding to real time wherein the time stamp value of the data unit to be next delivered is changed from the originally applied time stamp to the time stamp corresponding to real time such that the second computer continues to receive data units that have successively increasing time stamp values when a mode change from the first of the streaming modes to the second of the streaming modes occurs.

\* \* \* \* \*

system